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Farm Income and Government Payments to Agriculture in Nebraska

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Farm income in Nebraska reached a record level of $2,117 million in 1987, of which $1,275 million (or sixty percent) was received in the form of direct government payments. This chapter traces the recent history of farm income and direct government payments and describes the elements of the farm program that have had significant influence upon the Nebraska economy. The sensitivity of the Nebraska economy to movements in the farm sector is analyzed. Results from an econometric simulation analysis indicate that relatively strong multiplier effects occur in the state economy as a result of movements in farm income.

Introduction

Nebraska's farm sector has endured wide swings in activity levels. The 1970s were particularly volatile with farm income doubling and then decreasing by half, twice in succession. This cycle was repeated in the early 1980s, in concurrence with the well-documented debt crisis and decline in land values. Farm income has subsequently improved from the decade's early performance, but only with the help provided by large infusions of direct government payments.

There is constant debate about the role and importance of the farm sector in the overall state economy. While there is little doubt that the farm sector is a strong force in various nonmetropolitan areas of the state, the metropolitan areas of the state are usually viewed as less responsive to farm sector movements.

Characteristics of the farm sector and its relationship to the state economy are addressed in this chapter. First, the performance of the farm sector — as expressed by farm income — is documented on a historical and geographic basis. The size of the farm sector's direct contribution to the state economy is described. In addition, recent data from the U.S. Department of Commerce and U.S. Department of Agriculture are illustrated and discussed. Second, the role of direct government payments in bolstering farm income is analyzed, again in historical and geographic contexts. Also, the emergence of the Conservation Reserve Program as an important economic force is noted. Third, results from simulating the effects of farm income

changes (for example, variations due to changes in direct government support) upon the state economy are presented. The relationship and sensitivity between the farm sector and the state economy is consequently demonstrated. Fourth, several policy issues are discussed.

The data show that a large volume of government payments have been pumped recently into Nebraska's farm sector. As a result, farm income posted a sequence of record levels and helped maintain the entire state economy on a reasonable, but not spectacular, growth path.

The data show that a large volume of government payments have been pumped recently into Nebraska's farm sector. As a result, farm income posted a sequence of record levels and helped maintain the entire state economy on a reasonable, but not spectacular, growth path. The results from simulating farm income changes show that the farm income multiplier is approximately 1.9 with respect to the income of the entire state economy. The proper interpretation and context of this important finding is discussed in more detail below.

Farm Income Situation

Every sector of a state economy has many dimensions and characteristics, some of which are measured routinely by public or private organizations, or both. The ability to generate income is a characteristic of all sectors and is therefore something upon which to base comparisons and track performance. The income of the farm sector and total personal income of the state economy are analyzed in this section.[1] The information used is compiled regularly by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce. While other income accounts for the farm sector are maintained and published regularly by the U.S. Department of Agriculture, the BEA uses a common set of income accounting conventions for all sectors. Such uniform statistics must be used when comparing the farm sector and the balance of the state economy.

The farm income measure provided by BEA is the sum of income earned by farm labor and the net income earned by farm proprietors. In calculating the latter, cash receipts from the marketing of livestock, crops, and other products are added to other tangible receipts (including direct government

payments and rent) and to miscellaneous income items (including imputed dwelling rents and home consumption). Then production expenses are deducted from the total receipts. Next, an additive adjustment for change in the value of inventories is made. Such an adjustment is necessary for products such as crops that were produced but not sold in the same year. Corporate farm income is excluded (in 1986, it was seven percent of the total farm income in Nebraska) to arrive at net farm proprietors' income. Labor income earned on farms is then added, and the result is farm income.

Table 1 shows the levels of farm income and total personal income in Nebraska for 1969-1987, as well as the percentage of the state's personal income received as farm income. As previously noted, farm income varied widely during that period. The 1970s began with several years of strong and sustained growth, but this pattern was followed by extreme oscillations from the mid-1970s to 1983, when farm income fell to $640.7 million. Farm income more than doubled in 1984 to $1,319 million, and it has continued to rise during the past three years. Substantial government payments, lower production cost totals, and moderate rises in selected agricultural prices have helped the recovery of farm income.

Because the farm sector portion of personal income has averaged a substantial 8.7 percent, the erratic behavior of farm income during 1969-87 transmitted directly to the behavior of personal income.

The percentage of Nebraska's personal income received as farm income also varied widely during 1969-1987. The average for that period was 8.7 percent, with the percentage being much lower in depressed farm income years. This average percentage is roughly equal to the annual percentages for each of the last three years, during which farm income has been recovering. To put these Nebraska percentages in perspective, the percentage of United States personal income received in the form of farm income has held steady at 1.2 percent during the last four years. Even after discounting the years of extremely low farm incomes, it is apparent that the Nebraska percentage for farm income has been trending downward.

Because the farm sector portion of personal income has averaged a substantial 8.7 percent, the erratic behavior of farm income during 1969-87 transmitted directly to the behavior of personal income. The effect was not strong enough to cause declines in personal income during that period, but

Table 1 - Farm Income and Personal Income in Nebraska, 1969-87

Year	Entire State			Nonmetropolitan Areas*		
	Farm Income	Personal Income	Percentage of Personal Income Received as Farm Income	Farm Income	Personal Income	Percentage of Personal Income Received as Farm Income
	-Million Dollars-			-Million Dollars-		
1969	600.5	5,222.2	11.5	571.0	2,835.5	20.1
1970	539.9	5,592.9	9.7	519.8	2,974.5	17.5
1971	694.3	6,126.8	11.3	674.6	3,310.9	20.4
1972	812.3	6,782.6	12.0	790.5	3,694.4	21.4
1973	1,289.8	7,993.8	16.1	1,258.2	4,551.1	27.6
1974	806.3	8,312.5	9.7	784.6	4,502.7	17.4
1975	1,122.1	9,364.7	12.0	1,083.2	5,193.2	20.9
1976	622.9	9,869.1	6.3	599.8	5,254.1	11.4
1977	626.9	10,810.6	5.8	602.5	5,767.0	10.4
1978	1038.3	12,421.4	8.4	993.9	6,770.6	14.7
1979	1,127.0	13,851.5	8.1	1,087.2	7,560.8	14.4
1980	477.7	14,589.4	3.3	460.8	7,689.3	6.0
1981	1,280.8	16,861.6	7.6	1,234.4	9,201.2	13.4
1982	1,111.9	17,576.5	6.3	1,076.2	9,413.0	11.4
1983	640.7	17,986.6	3.6	613.7	9,355.8	6.6
1984	1,319.0	19,778.2	6.7	1,291.7	10,460.6	12.3
1985	1,701.9	20,828.8	8.2	1,634.6	10,993.4	14.9
1986	1,938.9	21,682.7	8.9	1,862.3	11,504.5	16.2
1987	2,116.8	22,845.2	9.3	NA	NA	NA

*Nonmetropolitan areas include all counties except for Douglas, Lancaster, and Sarpy.
Source: Bureau of Economic Analysis, U.S. Department of Commerce.

the annual growth rates were erratic, partially because of the farm income pattern. Estimates of the strength of the transmission effect from farm income to personal income are presented later in the chapter.

Nonmetropolitan Area Trends

The farm income portion of personal income is relatively low in Douglas, Lancaster, and Sarpy counties — the metropolitan counties of Nebraska. These three counties had the lowest farm-to-personal income ratios during 1986. Table 1 includes the histories through 1986 of farm income and personal income for the ninety nonmetropolitan counties in Nebraska. The percentage of personal income received as farm income is also shown. The average percentage over 1969-86 was 14.6. Disregarding the extremely low

farm incomes for many of the years shown in table 1, the trend of the percentages seems to be downward.

Personal income in the nonmetropolitan areas has had wider variance in growth rates than has income in the state as a whole, because of the greater role played by farm income. Two declines in personal income occurred during those periods that correspond to major drops in farm income. The period of 1979-81 illustrates the volatility of income movements. For example, from 1979 to 1980 personal income grew by 1.7 percent while from 1980 to 1981 the growth rate was a dramatic 19.7 percent. Erratic movements in farm income over these three years were largely responsible for the swings.

County Trends

The portion of personal income that is received as farm income varies widely by county. For county level information, the latest year for which full county detail is available, 1986, has been selected. In comparison to prior years, 1986 was a record high for farm income in the state. (Farm income improved slightly in 1987.)

Table 2 presents the ten counties of Nebraska that had the highest farm incomes during 1986. The percentages of personal income received as farm

Table 2 - Top Ten Nebraska Counties Ranked by Farm Income, 1986

County	Farm Income	Personal Income	Percentage of Personal Income Received as Farm Income
	-Thousand Dollars-		
Holt	54,347	179,848	30.2
Perkins	47,678	88,282	54.0
Clay	47,578	125,604	37.9
York	45,674	220,954	20.7
Platte	43,297	377,371	11.5
Fillmore	43,851	136,383	31.4
Dodge	42,292	464,919	9.1
Adams	39,764	414,885	9.6
Lincoln	38,543	436,044	8.8
Hamilton	38,387	129,635	29.6
Nonmetro State			16.2
State			8.9
U.S.			1.2

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

income are also shown. Of the top six counties, all but one show percentages that are substantially higher than the percentage for the nonmetropolitan area of the state.

Table 3 includes the ten counties with the highest percentages of personal income received as farm income. The majority of these counties have relatively low population and their economies are either dominated by or heavily oriented toward the farm sector. Figure 1 portrays geographic variations in farm income as a percentage of personal income in 1986.

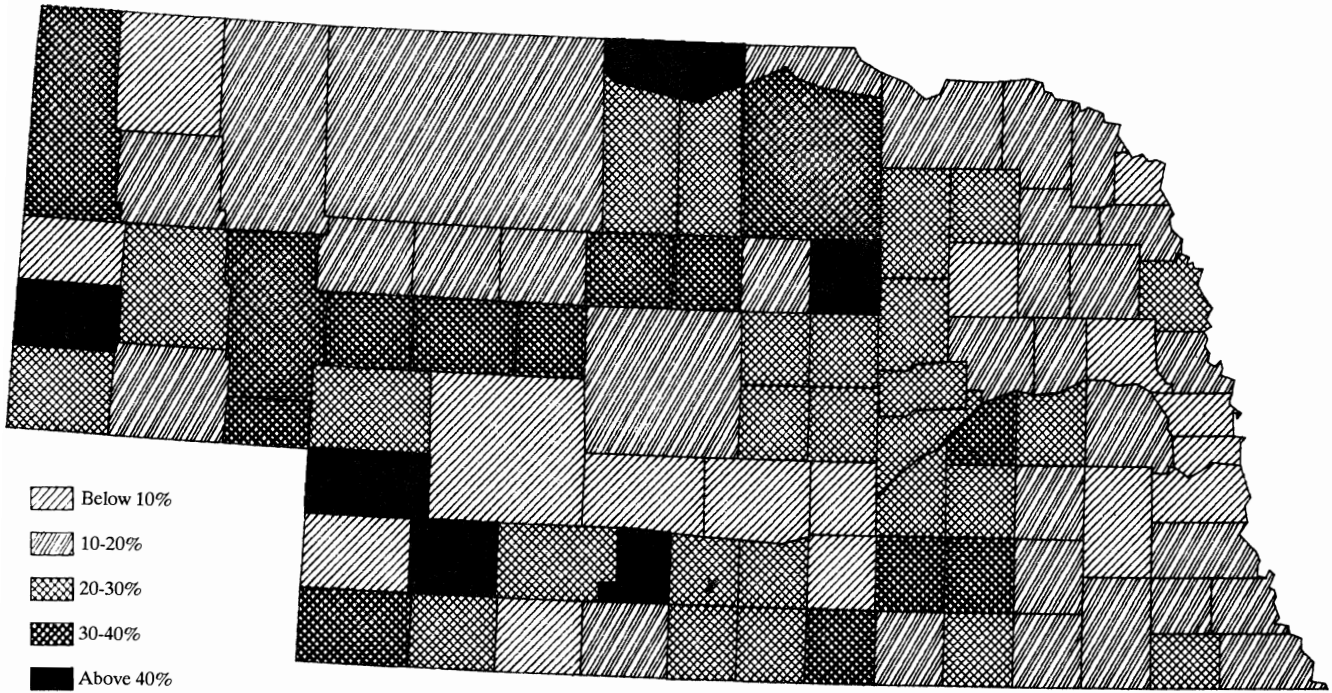
Is a high degree of direct dependence upon the farm sector undesirable? It may be fashionable to think so, but there are cases to counter this generalization. Table 3 shows that Wheeler and Perkins counties received 72.9 and 54 percent, respectively, of their personal incomes in 1986 directly from the farm sector. This ranks them first and third in the level of direct dependence upon farm activity. Yet the per capita income of Perkins County ranked tenth among all counties in the United States, and the per capita income of Wheeler County ranked fourteenth. Only Alaska, New York, and Texas matched Nebraska's placement of more than one county in the top fourteen in the United States, in terms of per capita income.

Table 3 - Top Ten Nebraska Counties Ranked by Percentage of Personal Income Received as Farm Income, 1986

County	Farm Income	Personal Income	Percentage of Personal Income Received as Farm Income
	-Thousand Dollars-		
Wheeler	17,442	23,910	72.9
Hayes	16,843	25,527	66.0
Perkins	47,678	88,282	54.0
Keya Paha	6,202	13,736	45.2
Banner	5,505	12,379	44.5
Gosper	14,115	33,818	41.7
Dundy	20,117	50,456	39.9
McPherson	2,547	6,486	39.3
Clay	47,578	125,604	37.9
Logan	4,875	12,951	37.6
Nonmetro State			16.2
State			8.9
U.S.			1.2

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

Figure 1 - Percentage of Personal Income Received as Farm Income, 1986



Source: Bureau of Economic Analysis, U.S. Department of Commerce.

For reference map with county names, see page xiii.

Government Payments to the Farm Sector

Farm programs for 1986 through 1990 are under the purview of the Food Security Act of 1985. This act provided for a decline in loan rates for grains coupled with an expansion in deficiency payments designed to provide income support. Loan rates are the price support levels at which producers may place their grain under loan in the farm program. By lowering the effective price floors, food prices may now be lower than if earlier farm legislation been retained (Parlett and others 1987). Before 1986 there was a varied procession of farm legislation; however, there have been some common elements and goals in the legislation, both in the past and in the present.

There are two major forms of government payments made to the farm sector: nonrecoverable payments, usually referred to as direct payments; and recoverable payments. Direct payments consist of deficiency payments, diversion payments, disaster payments, reserve storage payments, conservation payments, and other payments that are generated from various farm programs. Direct payments are a primary element in the computation of farm income. There is no deduction posted against these payments in the income accounting system, so every dollar of direct payments is a dollar of farm income. Deficiency payments accrue to participating feed and food grain producers based upon the difference between the target price and the market price or loan rate, whichever of these differences is less. Soybeans do not have such a payment provision under current farm legislation. Typically, participation in these programs is contingent upon meeting required acreage reductions. However, opportunities for diverting acreage from the base acreage may also be available. Payments for participation in such a system are known as diversion payments. Disaster payments accrue to producers of food and feed grains when adverse weather or other severe conditions prevent planting or cause abnormally low yields. Reserve storage payments are made to producers who have agreed to store grain under certain conditions and for periods of time stipulated by the government.

Table 4 lists the direct payments made to Nebraska's farm sector from 1982 to 1987 in each of the relevant farm programs. Payments in the feed grain program rose dramatically during 1985-87, because producers received large deficiency and storage payments. Market prices for corn and wheat were below target prices during these years, so participation rates by producers in the feed grain and wheat programs were relatively high. Payments in the miscellaneous category of programs were high in 1983 and 1984, when the original payment-in-kind (PIK) program was instituted.

Concerning grain production, the recoverable payments portion of total government payments to the farm sector in a given year consists of the net value of Commodity Credit Corporation (CCC) loans. The net value of these

Table 4 - Direct Government Payments to the Farm Sector by Program and Net CCC Loans in Nebraska, 1982-87*

Program	1982	1983	1984	1985	1986	1987
			-Million Dollars-			
Direct payments	277.5	786.8	533.0	518.4	858.4	1274.8
Conservation§	5.2	6.5	6.0	7.1	8.9	91.4
Feed grain	97.8	189.6	33.0	373.4	596.0	921.9
Wheat	19.9	30.5	63.6	72.2	138.6	107.9
Wool act	0.5	0.6	1.5	1.2	1.2	1.2
Miscellaneous #	154.0	559.6	428.9	64.5	113.7	152.4
Net CCC loans	1033.5	16.8	-192.2	923.3	1065.0	198.5

*Includes both cash payments and PIK.

§ Includes amount paid under agriculture and conservation programs (Agriculture Conservation, Conservation Reserve, Emergency Conservation, and Great Plains Program).

The programs included are: Original PIK, Rural Clean Water, Clean Lakes, Animal Waste Management, Forest Incentive, Water Bank, Dairy Indemnity, Dairy Termination, Emergency Feed, Extended Warehouse Storage, Extended Storage, PIK Storage, and Milk Diversion.

Sources: U.S. Department of Agriculture, *Economic Research Service, Economic Indicators of the Farm Sector: State Financial Summary, 1986.* Washington, D.C., 1988. Data for 1986 and 1987 were obtained in unpublished form from USDA.

loans consists of the loans made in the year minus the repayment of loans that were made either in the same year or in previous years. Thus, net CCC loans do not enter as an item in the farm income accounting system, because the value reflects more than just current year activity.

CCC loans are important in the overall farm program. The process of generating CCC loans begins with the establishment of loan rates at the county level for eligible commodities. In Nebraska, the grains involved include wheat, corn, sorghum, soybeans, barley, oats and rye. Various rules have been used in setting these rates through the years. The current farm legislation created formulas for the basic loan rates for the remainder of the decade based upon percentages of preceding five-year averages of market prices. However, there is latitude to move the loan rates downward by as much as 20.0 percent for the grains, excluding soybeans, when market prices are 110.0 percent or less of the basic loan rate. Such adjustments were made during 1986 and 1987 and caused loan rates to fall dramatically on all grains except soybeans.

Producers and approved cooperatives that participate in the farm program can put their eligible grain into storage and receive a loan equal to the quantity of grain multiplied by the loan rate. This loan matures in nine

months but may be repaid at any time before maturity. The loan is non-recourse because the grain being held as collateral is considered to be full payment of the principal and interest upon maturity, even if the market price of the grain is below the loan rate. Thus, the loan rate functions as a price floor for the grain, although storage costs are owed to the CCC if title to the grain is forfeited by the producer. The volume of CCC loans made will obviously expand when market prices are below the loan rate. Net CCC loans will expand when market prices remain below loan rates for periods of time that exceed the maturities of a sufficient volume of loans. When market prices rise above loan rates, producers can take advantage of the price increases by repaying the loan principal, interest, and storage costs, and then marketing the grain. In the farmer-owned reserve program, which is included in CCC loan activity, loans are made for three-year periods with stipulations placed upon redemption prior to loan maturity.

The percentage of farm income received as direct payments has been high since 1983. Clearly, these payments have been instrumental in sustaining farm income growth since 1983 and have directly contributed to the state's rate of income growth over the past few years.

CCC loan proceeds to producers are counted as cash receipts in the income accounts of the year in which the loan was made. Only the difference between the loan value and the market value of the commodity, not the full amount of a CCC loan, can be viewed as a subsidy to the producer. Data on this difference are not readily available on a statewide basis. Estimating the difference seems impractical because the potential market value of crops under loan cannot be based upon observed market prices. Market prices would change in the absence of the loan program. The net CCC loan totals for Nebraska during 1982-87 are presented in table 4. Very high levels of loan activity occurred during 1985 and 1986. Farm income was definitely given a boost from the loan program; persistent positive differentials existed between loan rates and market prices during these years.

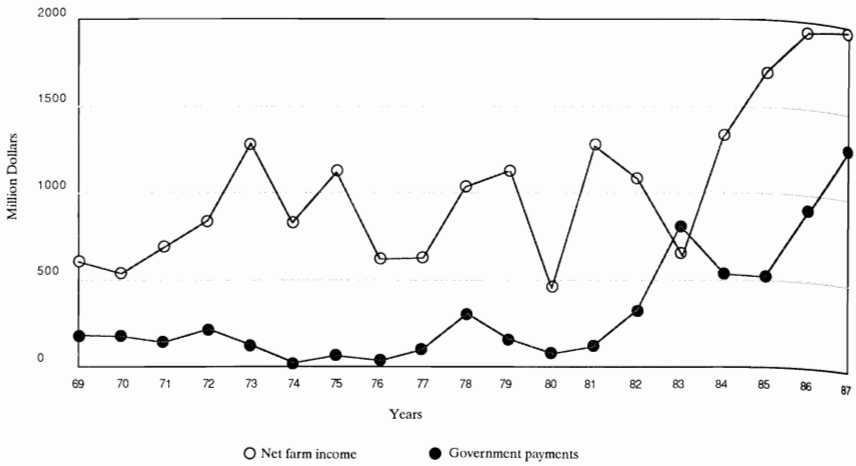
Table 5 contains the levels of direct payments to the farm sector of Nebraska during 1969-87. Farm income and the percentage of farm income received as direct payments are also included. Figure 2 provides a trend line of the data. The years in which direct payments have provided major boosts to farm income are apparent from the table and graph. In 1983, the year of the sizeable PIK program, direct payments exceeded farm income, so the farm sector had a net loss in the absence of the payments. The 1983 level of direct payments was almost triple the level of 1982, which had been the highest level since the first year listed in the table, 1969. Direct payments dropped from the 1983 level by roughly $250 million and $270 million in 1984 and 1985 respectively, but advanced in 1986 to $858.4 million and in 1987 to $1,274.8 million. Large deficiency and storage payments in wheat and the feed grain programs fueled this rise.

Table 5 - Direct Government Payments to the Farm Sector and Farm Income in Nebraska, 1969-87

Year	Direct Government Payments	Farm Income	Percentage of Farm Income Received as Direct Payments
	-Million Dollars-		
1969	200.6	600.5	33.4
1970	203.0	539.9	37.6
1971	171.0	694.3	24.6
1972	233.3	812.3	28.7
1973	151.8	1,289.8	11.8
1974	21.0	806.3	2.6
1975	71.7	1,122.1	6.4
1976	36.6	622.9	5.9
1977	92.9	626.9	14.8
1978	268.6	1,038.3	25.9
1979	132.7	1,127.0	11.8
1980	82.9	477.7	17.4
1981	101.0	1,280.8	7.9
1982	277.5	1,111.9	25.0
1983	786.8	640.7	122.8
1984	533.0	1,319.0	40.4
1985	518.4	1,701.9	30.5
1986	858.4	1,938.9	44.3
1987	1,274.8	2,116.8	60.2

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

Figure 2 - Direct Government Payments to the Farm Sector and Farm Income in Nebraska, 1969-1987



Source: Bureau of Economic Analysis, U.S. Department of Commerce.

The percentage of farm income received as direct payments has been high since 1983. Clearly, these payments have been instrumental in sustaining farm income growth since 1983 and have directly contributed to the state's rate of income growth over the past few years. The fact that the payments now constitute a significant portion of farm income— 60.2 percent in 1987— shows the vulnerability of the farm sector and the state to declines in federal government payment levels. Significant drops in payment levels in the future without offsetting increases in cash receipts or declines in production costs will have serious repercussions throughout the state economy.

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County Detail

Great variation exists among counties regarding the amount of direct payments received under farm programs. Hamilton County received the largest amount — $26.7 million — in 1986, while Grant and Hooker counties each received less than $50,000. Table 6 provides direct payment amounts for the ten counties receiving the highest level of payments in 1986. Farm income and the percentage of farm income received in the form of direct payments are also given. Eight out of the top ten counties had percentages of farm incomes received in the form of direct payments that were above the state percentage of 44.3. Table 7 shows the same data categories as table 6, but for the ten counties that had the highest farm incomes in 1986. It is not surprising that six counties appear in both tables as the percentage of farm income received as direct payments is quite high for several of the high farm income counties.

Table 6 - Top Ten Nebraska Counties Ranked by Direct Government Payments, 1986

County	Direct Government Payments	Farm Income	Percentage of Farm Income Received as Direct Payments
	-Thousand Dollars-		
Hamilton	26,670	38,387	69.5
York	23,683	45,674	51.9
Perkins	22,747	47,678	47.7
Phelps	22,259	35,169	63.3
Holt	19,794	54,347	36.4
Fillmore	19,142	42,851	44.7
Kearney	18,840	29,250	64.4
Buffalo	18,830	33,186	56.7
Clay	18,461	47,578	38.8
Antelope	18,361	31,938	57.5
Nonmetro State			45.7
State			44.3
U.S.			27.3

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

Table 7 - Direct Government Payments Received in the Ten Nebraska Counties of Highest Farm Income, 1986

County	Direct Government Payments	Farm Income	Percentage of Farm Income Received as Direct Payments
	-Thousand Dollars-		
Holt	19,794	54,647	36.4
Perkins	22,747	47,678	47.7
Clay	18,461	47,578	38.8
York	23,683	45,674	51.9
Platte	16,066	43,297	37.1
Fillmore	19,142	42,851	44.7
Dodge	10,126	42,292	23.9
Adams	18,244	39,764	45.9
Lincoln	15,379	38,543	39.9
Hamilton	26,670	38,387	69.5
Nonmetro State			45.7
State			44.3
U.S.			27.3

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

The dependence of all county farm sectors upon direct payments is clearly illustrated in figure 3. Fifty-six counties received over forty percent of farm income as direct payments; forty-two counties were in the forty to sixty percent range. Counties with farm sectors that are dominated by wheat and feed grain production had the higher percentages. Table 8 shows the ten counties that had the highest percentages of farm income received as direct payments during 1986. Obviously, the farm sectors of these counties were very dependent upon direct payments in 1986. Such high percentages make the county economies very susceptible to income declines if payments decline.

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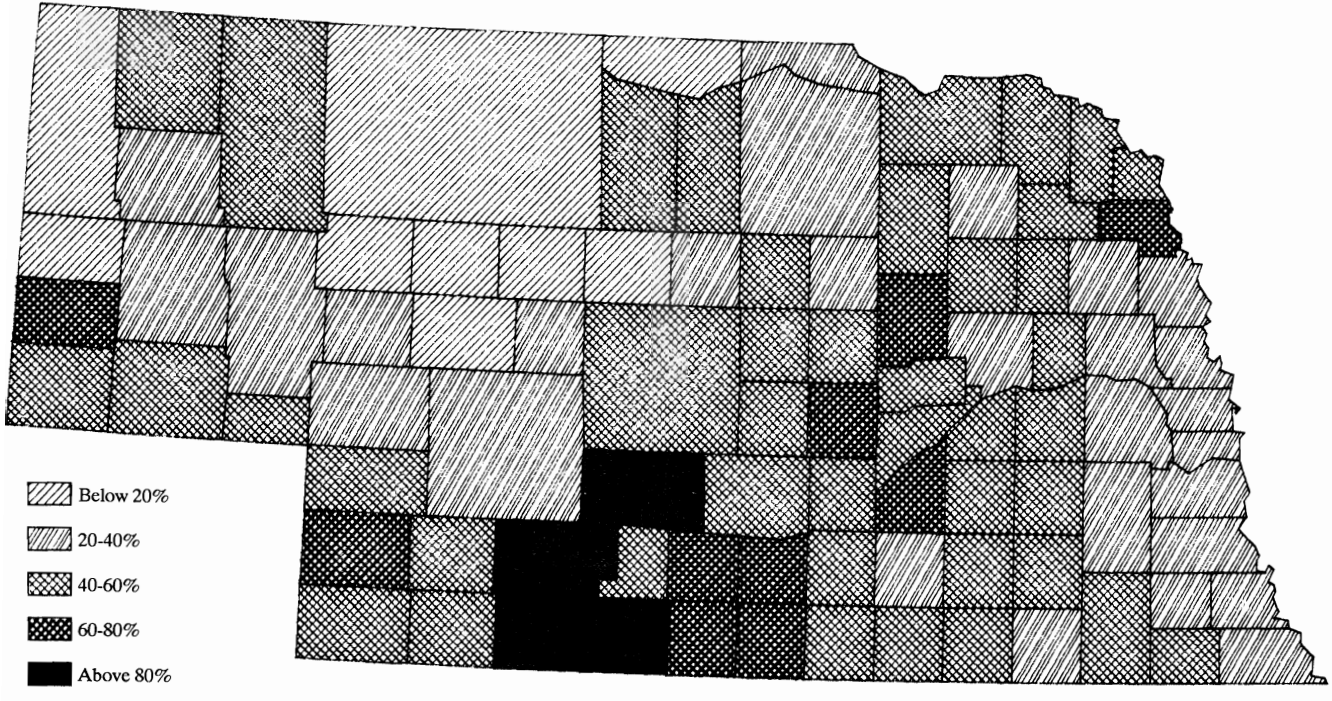
Figure 3 - Percentage of Farm Income Received as Direct Government Payments, 1986



Source: Bureau of Economic Analysis, U.S. Department of Commerce.

For reference map with county names, see page xiii.

Table 8 - Top Ten Nebraska Counties Ranked by Percentage of Farm Income Received as Direct Government Payments, 1986

County	Direct Government Payments	Farm Income	Percentage of Farm Income Received as Direct Payments
	-Thousand Dollars-		
Furnas	12,395	10,936	113.3
Frontier	11,099	10,923	100.8
Red Willow	11,463	13,002	88.2
Dawson	17,938	20,694	86.7
Harlan	10,284	13,005	79.1
Thurston	5,163	6,649	77.7
Banner	4,224	5,505	76.7
Hamilton	26,670	38,387	69.5
Franklin	10,720	15,693	68.3
Boone	15,682	23,343	67.2
Nonmetro State			45.7
State			44.3
U.S.			27.3

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

The importance of direct payments as part of the total personal income of the state and counties is documented for 1986 in table 9 and figure 4. For the state as a whole, four percent of total personal income came in the form of direct payments in 1986, and that year was the highest percentage during the 1969-86 period. Thirty counties had percentages between ten and twenty, while thirty-one counties were in the five-to-ten percent range.

While the percentages of farm and personal income received as direct payments were high for certain counties and the state in 1986, it is not inevitable that economic disaster will strike if payments decline. Using Hayes County from table 9 as an example, direct payments declined from $7.3

Market movements may tend to counteract payment increases or decreases. Every major farm bill or minor program change will affect the balance between market forces and eventual payment amounts.

Table 9 - Top Ten Nebraska Counties Ranked by Percentage of Personal Income Received as Direct Government Payments, 1986

County	Direct Government Payments	Personal Income	Percentage of Personal Income Received as Direct Payments
	-Thousand Dollars-		
Banner	4,224	12,379	34.1
Hayes	6,949	25,527	27.2
Perkins	22,747	88,282	25.8
Gosper	8,291	33,818	24.5
Frontier	11,009	45,239	24.3
Hamilton	26,670	129,635	20.6
Chase	14,084	68,690	20.5
Dundy	10,145	50,456	20.1
Harlan	10,284	52,857	19.5
Franklin	10,720	56,446	19.0
Nonmetro State			7.4
State			4.0
U.S.			0.3

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

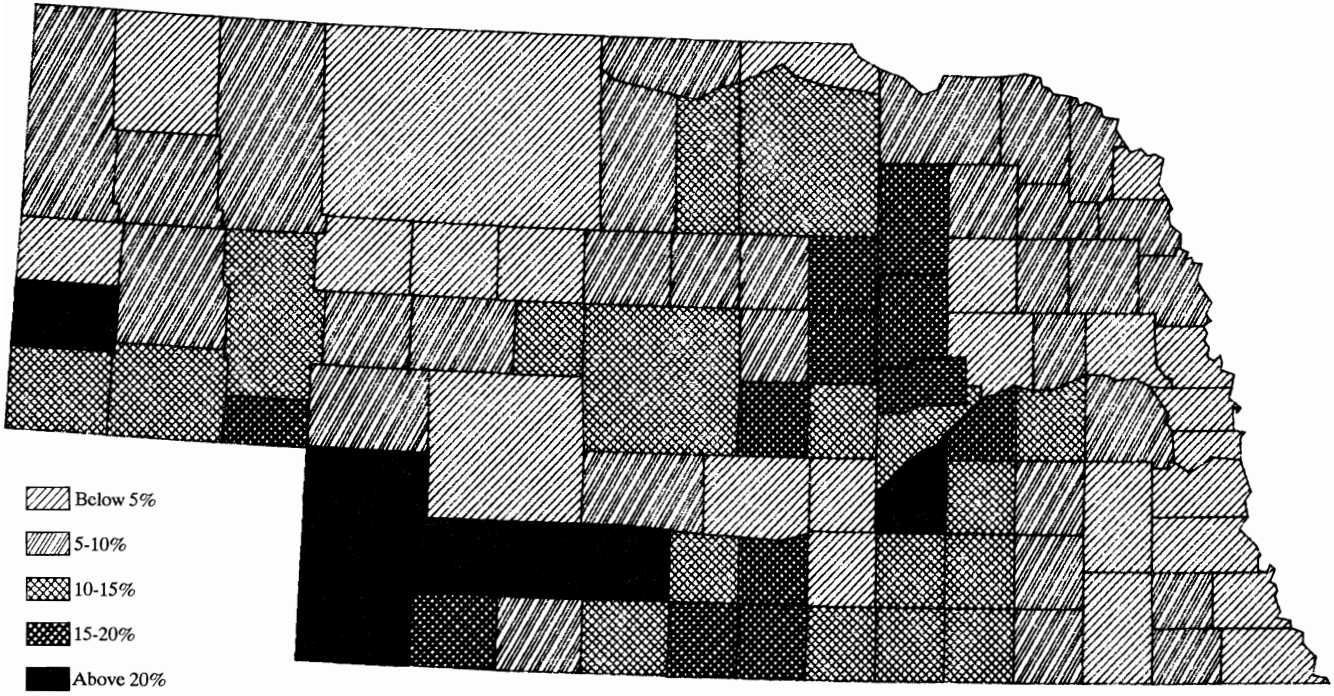
million in 1984 to $6.9 million in 1986, but personal income rose substantially from $18.8 million to $25.5 million.

Table 5 shows that in Nebraska, direct payments decreased and farm income increased during 1984 and 1985. Similarly, direct payment increases were associated with farm income decreases when comparing 1981 with 1982 and 1982 with 1983. Market movements may tend to counteract payment increases or decreases. Every major farm bill or minor program change will affect the balance between market forces and eventual payment amounts. However, higher percentages of income as direct payments will obviously be associated with greater risks of volatile income changes if payment declines are not offset, for example, by market increases.

Conservation Reserve Program

The 1985 farm bill contains a Conservation Reserve Program (CRP) designed to idle acreage meeting erodibility requirements. The announced goal was to place forty to forty-five million acres nationwide into the program. To be considered for CRP, landowners must submit bids of acreage amounts and annual payments per acre to the Department of Agriculture during intermittent enrollment periods. Accepted bids are awarded contracts

Figure 4 - Percentage of Personal Income Received as Direct Government Payments, 1986



Source: Bureau of Economic Analysis, U.S. Department of Commerce.

For reference map with county names, see page xiii.

to receive the annual payments for a period of ten years. Cover must be established on the enrolled acreage, but a cost-sharing program is available for this purpose. Through the sixth enrollment period of February 1-19, 1988, 1,057,945 acres in Nebraska were placed in the CRP.[2] The fourth enrollment period, conducted in 1987, had the highest activity, when about one-half million acres were enrolled. The total annual payment accruing to the acres enrolled is $58,119,543, resulting in an average payment per acre of $54.94.

While the total annual payment is a small percentage of, for example, the recent levels of all direct government payments to Nebraska, it represents a stable flow of funds that is guaranteed over an extended period of years.

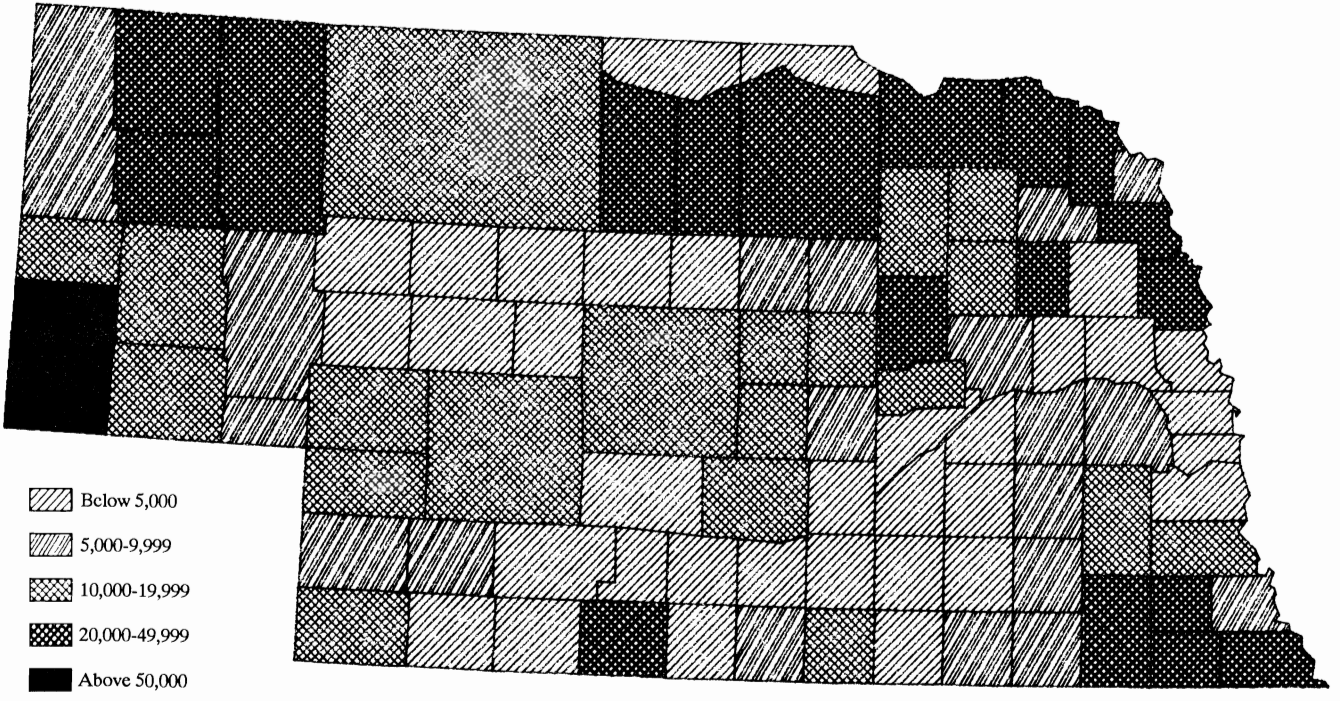
While the total annual payment is a small percentage of, for example, the recent levels of all direct government payments to Nebraska, it represents a stable flow of funds that is guaranteed over an extended period of years. Market conditions and elements in the production-based programs may change, but the CRP will remain a source of income stability, at least in nominal terms. Yet, in reality, when discounted for inflation, the value of these fixed payments begins to erode from the beginning and will continue to do so.

The importance of the CRP varies widely by county. Figures 5 and 6 portray estimates of the acreage enrolled and annual payments made for Nebraska counties through the sixth enrollment period. Only the range of acreage in each county is provided, because the estimates are subject to revision. Kimball and Banner counties lead in acreage; Pawnee and Dixon counties join them as the counties receiving the highest payment levels.

Simulation of Farm Income Effects

An econometric model of Nebraska was constructed for estimating and simulating the effects of farm income movements upon the state economy. In simplest terms, an econometric model is a set of equational relationships involving a diverse set of variables that are present in a regional economy. Annual data over the 1969-87 period were used to formulate the relation-

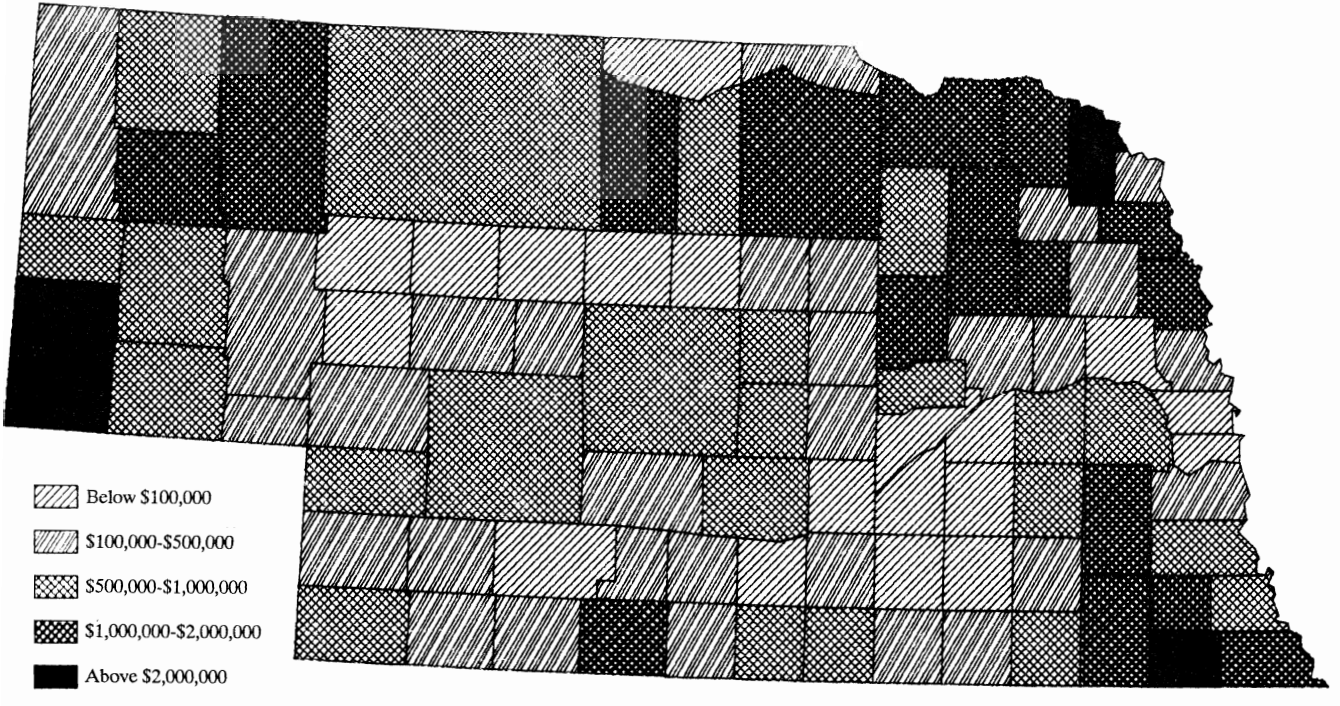
Figure 5 - County Acreages Enrolled in the Conservation Reserve Program (Through Sixth Enrollment Period)



Source: U.S. Department of Agriculture.

For reference map with county names, see page xiii.

Figure 6 - Annual Payments Under the Conservation Reserve Program (Through Sixth Enrollment Period)



Source: Estimates based on data from U.S. Department of Agriculture.

For reference map with county names, see page xiii.

ships within the model. By making assumptions about the values of key economic variables, known as *drivers*, simulations of various economic activity variables can be carried out. Farm income is one of the drivers in the model, so various scenarios about farm income behavior can be considered. As a result, the strength of the transmission from farm income through the rest of the economy can be measured. The simulation period used is 1988-93.

The first task is to establish a baseline so that differing farm income scenarios can be compared with a norm. Assumptions for the driver variable values must be made in order to construct the baseline. The baseline used here assumes annual growth rates of seven percent for U.S. personal income and five percent for the U.S. consumption deflator (price index) through the simulation period. The farm income assumption in the baseline holds the levels during the 1988-93 simulation period at $1,990.8 million, BEA's first-announced level of 1987 farm income.

Declining Government Support Programs

Table 10 contains the baseline values and three scenario simulations for selected variables (farm income, total personal income, taxable retail sales, nonagricultural employment, and farm employment). The first scenario shows farm income declining by $100 million during each successive year of the simulation period. These drops can be viewed as the result of declines in government support programs that are not offset by gains in cash receipts or gains in other positive elements from the farm income statement. Total personal income of the state falls by $190 million, from the baseline value of $23,778 million to $23,588 million, in the initial year of the decline pattern. Because farm income is a dollar-for-dollar entry into the personal income accounting system, $100 million of the $190 million decline is the direct effect from the farm income drop. The remaining $90 million decline is suffered by other sectors as they react to the farm income decline. Taxable retail sales fall by $67.4 million in response to the personal income decline, while the drops in farm employment are very minor because of the absence of a strong historical relationship between farm employment and income.

The indirect effects show slight growth relative to the direct effects over time. In the last year of the simulation period, farm income is placed $600 million below the baseline value. Personal income drops by $1,210 million, from $30,900 to $29,690 million; so subtracting the $600 million direct decline leaves an indirect effect of a $610 million decline. The ratio of the indirect and direct effects was 0.9 in the first year, but it has risen to 1.02 by the final year of the simulation period. Taxable retail sales in the final year show a $431 million decline in response to the farm income decline from the baseline.

Table 10 - Farm Income Simulations*

Variable	1988	1989	1990	1991	1992	1993
			-Million Dollars-			
Farm income:						
Baseline	1,990.8	1,990.8	1,990.8	1,990.8	1,990.8	1,990.8
Scenario 1	1,890.8	1,790.8	1,690.8	1,590.8	1,490.8	1,390.8
Scenario 2	2,090.3	2,194.9	2,304.6	2,419.8	2,540.8	2,667.9
Scenario 3	1,851.4	1,721.8	1,601.3	1,489.2	1,385.0	1,288.0
Personal income:						
Baseline	23,777.5	24,962.6	26,289.9	27,714.8	29,437.4	30,900.0
Scenario 1	23,588.3	24,574.0	25,697.9	26,917.5	28,434.0	29,690.1
Scenario 2	23,965.7	25,358.8	26,908.4	28,568.6	30,539.0	32,262.4
Scenario 3	23,513.7	24,439.5	25,519.9	26,712.6	28,218.2	29,478.3
Taxable retail sales:						
Baseline	10,369.4	10,785.8	11,258.9	11,766.6	12,380.4	12,901.7
Scenario 1	10,302.0	10,647.3	11,047.8	11,482.4	12,022.9	12,470.5
Scenario 2	10,436.5	10,927.0	11,479.2	12,070.8	12,773.0	13,387.1
Scenario 3	10,275.0	10,599.4	10,984.4	11,409.4	11,946.0	12,395.0
			-Employees-			
Non-ag employment:						
Baseline	664,315	669,648	676,160	682,889	690,748	697,002
Scenario 1	663,211	667,498	673,049	678,913	686,000	691,569
Scenario 2	665,414	671,841	679,411	687,148	695,965	703,127
Scenario 3	662,776	666,753	672,115	677,894	684,985	690,627
Farm employment:						
Baseline	69,590	68,497	67,506	66,548	65,604	64,665
Scenario 1	69,520	68,408	67,415	66,464	65,527	64,594
Scenario 2	69,660	68,589	67,602	66,644	65,697	64,753
Scenario 3	69,493	68,379	67,394	66,451	65,523	64,598

*Scenario 1 has farm income declining by $100 million during each successive year of the simulation period. Scenario 2 has farm income values reflecting an annual increase of five percent. This rate of growth matches the assumed inflation rate and leaves farm income constant in real terms over the simulation period. Scenario 3 is based upon an annual seven percent decline in farm income.

Despite the declines in performance from the baseline, the magnitude of drops in farm income under scenario 1 are not sufficient to halt the growth of personal income, retail sales, or employment. Growth rates of these aggregates are, of course, lowered, with the average annual growth rate of personal income turning out to be under five percent during the simulation period. The assumption of a five percent inflation rate in the scenario implies that the average growth rate in real personal income is slightly

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Rising Farm Income

The second scenario is positive in its assumptions for the farm sector. Farm income values in this scenario show an annual increase of five percent. This rate of growth matches the assumed inflation rate, with farm income constant over the simulation period. Farm income in the first year is about $99.5 million higher than the baseline value. Personal income rises by $188.2 million from the baseline and reflects the same sensitivity to farm income, but in a positive growth direction, that was observed in the negative direction under the first scenario. Taxable retail sales rise by $67.1 million from the baseline. By the sixth year of the period, personal income has exceeded the baseline by $1,362 million ($685 million of this is the indirect effect and $677 million is the direct effect from the farm income rise). The annual growth rates of personal income average a little above six percent in this second scenario, a rate that is above the assumed inflation rate of five percent. Thus, growth for the balance of the state economy is assured if farm income growth keeps ahead of the rate of inflation. However, the Nebraska economic growth rate would still fall short of the rate of growth in the U.S. economy.

Declining Farm Income

A third scenario based upon an annual seven percent decline in farm income is also given in table 10. The same patterns discussed in the context of the first scenario are repeated, but the magnitudes of the declines are greater.

Policy Issues

The range of farm income possibilities covered in the scenarios provides useful information on the manner in which the Nebraska economy reacts to farm sector movements. Reaction appears to be relatively strong with total effects upon personal income being about 1.9 times the amount of the change in farm income during the same year. This effect rises slightly to around a factor of two for later years if the pattern of farm income change repeats itself. Clearly, erratic behavior in farm income is always transmitted to the entire state economy. Other sectors of the economy have shown more stable growth patterns, which have tended to dilute — although not fully — the instabilities induced by the farm sector over time.

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The strength in farm income during the past few years has helped the entire state economy to move forward. As outlined above, direct government payments to the farm sector have played a major role in the farm income increases. The percentages of farm income received in the form of direct payments have been 40.4, 30.6, 45.0 and 64.0 percent for the respective years in the 1984-1987 period. The corresponding annual increases in farm income have been 29.0, 13.9 and 9.2 percent. Approximately four percent of the state's entire personal income was in the form of these direct government payments in 1986, and the percentage grew to 5.6 in 1987. If government farm payment levels decline in the future without compensating income gains from agricultural market activity (or some other activity in another sector), then the entire state will be adversely affected. Perhaps more alarming, personal income in certain counties of the state has been dependent upon direct payments to an extremely high degree. For example, selected counties in the southwest portion of Nebraska (see figure 4 and table 9 for specific counties and data), received between 19 and 34.1 percent of their total personal income in the form of direct government farm payments in

1986. Another severe agricultural depression or major cuts in government farm payments could well devastate that region in particular.

Without sustained long-term recovery in commodity prices, Nebraska's farm income level will continue to be determined as much by prevailing federal legislation as by market receipts and operating expenses. The policy provisions contained within the farm programs are under federal — not state — control. Future farm legislation enacted to succeed the 1985 farm bill will be a critical factor in determining the growth path for Nebraska's economy in the early 1990s. While Nebraskans should do all they can to make their opinions known concerning federal farm policies, and should lobby vigorously for program provisions that are favorable to the state, actions more directly under the control of state policy actors must be undertaken. Following are some policy issues which should be addressed by Nebraskans.

State Rural Policy

The statewide and county data on personal income and direct government farm payments are indicative of the agricultural dependence of many Nebraska counties. Recent calls for economic diversification appear to be well founded in light of the data analyzed in this chapter. While any rural development strategy in Nebraska needs to have a basic focus on job creation in both food and fiber *and* nonfood and nonfiber industries, several issues warrant special attention.

Without sustained long-term recovery in commodity prices, Nebraska's farm income level will continue to be determined as much by prevailing federal legislation as by market receipts and operating expenses.

Targeting Two Agricultural Economies. First, while rarely appearing in pure form, it appears that two farm economies operate in Nebraska. One is meat production, and it is driven more by market forces than by direct government payment programs. The other is oriented to food and feed grain production and the accompanying government policies and payment programs. Counties dominated by each of these agriculture sectors may exhibit different income trends. As a result, when farm incomes are up in food and feed grain producing counties, they will not necessarily be up in ranching counties (if the market for meat is down, for example). A state

rural development strategy will thus need to take these differences into account. Resources and programs should be targeted according to degree and type of agriculture dependence as well as other factors, such as level of income. In simplest terms, counties with differing agricultural economies will perform differently and rural development strategies need to be targeted accordingly.

The Linkage Between State and Federal Policy. Second, rural development efforts in Nebraska must incorporate and build upon the dynamics of federal farm policy. For example, growing alternative crops represents an important development option for rural Nebraska. Yet any effort to redirect agricultural activity will have to take into account the fact that federal farm programs now determine, in varying degrees of completeness, the income streams of producers. This means that new rural development ventures such as crop diversification efforts in Nebraska will have to provide the same income opportunities as federal government farm programs in order to get producers to switch crops.

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The implication is that Nebraska state government may have to provide financial inducements to get producers to behave in new ways (growing alternative crops, for example). While growing alternative crops may be in the interest of the state as a whole, such behavior (without financial inducements) might not be in the short-run interest of the individual producer, given current federal farm policy.

Helping People vs. Places. Depopulation and resettlement from rural areas of the state raise additional policy issues. These trends in population movement may well be irreversible, with more than three-fourths of Nebraska's counties having their peak population in 1930 or earlier (Deichert 1986). As rural residents either leave the state or migrate to urban places in Nebraska, they leave behind smaller communities and surrounding areas. With these facts in mind, policy makers in Nebraska need to consider

whether they should help places (communities), people, or both as part of any rural development strategy.

> Advocates of people strategies argue that the needs of rural people can best be met when location factors are isolated from strategies; in other words, place is secondary. Furthermore, they usually argue that solutions focusing on people rather than places are usually cheaper. For example, the cost of keeping a small town alive or creating new opportunities in the town may be many times the cost of relocating individuals. Individual assistance programs, whether they be income maintenance or basic education programs to help the rural poor, need not be much different from programs for the urban poor.
>
> Advocates of place strategies, on the other hand, argue that people should be able to stay where they currently live; thus, efforts to meet human needs must focus on rural communities. Place-oriented advocates also argue that it is more efficient to use existing infrastructure investments in small towns than to relocate people. (Smith 1988)

Programs to assist places would emphasize locally based economic and community development programs. Such initiatives should either enhance community economic competitiveness or enhance community capacity to stabilize or maintain quality of life for residents (DiMartino 1987).

Rural Resource Base. While the analytic results noted earlier show a reasonably strong multiplier effect from the farm sector to the balance of the state economy, the transmission effect is no doubt much stronger for rural areas. A return to depressed farm income levels or a return to episodes of erratic swings in farm income may accelerate the depopulation trend in those counties that are most dependent upon agriculture.

If movements toward property tax relief persist in the state, then special attention might be given to those counties which have high economic vulnerability to farm income changes.

In Nebraska, South Dakota, and many other farm states, such changes have led to farm population losses and, in turn, to declines in the area's resource base (Swanson 1980; Smith 1985).

While state rural development policy should explicitly address the desirability of rural-to-urban migration, it is quite probable that the signals received by Nebraska's farm sector from the national and world economies will swamp any state or local policy actions meant to stem out-migration from the state's most rural areas. As a result, some of the state's counties will continue to see an erosion of their financial resources. Two responses to this

trend warrant consideration. First, if movements toward property tax relief persist in the state, then special attention might be given to those counties which have high economic vulnerability to farm income changes. The counties listed in table 3 are notable in this regard. Another issue which should be considered for those counties most dependent upon farm income is assistance to local government officials in developing new or alternative ways of financing and delivering public services.

Endnotes

1. Personal income is the sum of the following components: wages and salaries; other labor income; proprietor's income; dividends, interest and rent; transfer payments; and a residence adjustment; minus personal contributions for social insurance.

2. A seventh enrollment period was conducted during the summer of 1988. Data on the enrollment activity were not available at the time of this writing.

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